

CLAIMS**WHAT IS CLAIMED IS:**

1. A system for heating a fluid for delivery into a body of a patient comprising:
a fluid delivery-line comprising:
a tube for communicating a fluid;
at least one thermal sensor; and
a heating element positioned proximate a surface of the fluid delivery tube to heat fluid within the tube.
2. The system according to claim 1, further comprising a controller.
3. The system according to claim 1, wherein the heating element is spaced apart from an outer surface of the second tube.
4. The system according to claim 1, wherein a wall of the tube comprises a thermal medium for distributing heat received by the outer surface of the tube from the heating element.
5. The system according to claim 1, wherein the heating element surrounds the tube.
6. The system according to claim 1, wherein the heating element spirally surrounds the tube.
7. The system according to claim 1, wherein the heating element comprises a plurality of heating elements surrounding the tube and having a length positioned substantially parallel to a length of the tube.
8. The system according to claim 1, wherein the heating element comprises a plurality of heating elements, each circumferentially surrounding the tube and spaced apart from one another along a length of the tube.
9. The system according to claim 1, wherein the heating element is surrounded by a thermal medium.

10. The system according to claim 1, wherein the thermal medium comprises a fluid.
11. The system according to claim 1, wherein the fluid delivery tube includes a bag spike positioned at one end.
12. The system according to claim 1, wherein the fluid delivery tube includes a transfusion needle and/or a leur-lock at one end.
13. The system according to claim 1, wherein the heating element and/or thermal sensor are in electrical contact with the controller.
14. The system according to claim 1, wherein the controller is connected to a power source.
15. The system according to claim 2, wherein the power source is selected from the group consisting of: a one-time use battery pack, a rechargeable battery pack, AC power, and DC power.
16. The system according to claim 1, wherein the tube is sterile prior to use.
17. The system according to claim 2, wherein the controller provides an electrical current to the heating element.
18. The system according to claim 17, wherein the controller controls the temperature of the second tube by sensing a temperature corresponding to a temperature of fluid within the second tube and adjusting the amount of current supplied to the heating element.
19. The system according to claim 2, further comprising a heat element connector and/or a thermal sensor connector for connecting the heat element and thermal sensor, respectively, to corresponding connectors on the controller.
20. The system according to claim 1, further comprising a valve.

21. The system according to claim 20, wherein the valve comprises a temperature actuated valve that opens upon the temperature of the fluid within the second tube reaching a predetermined value.
22. The system according to claim 1, further comprising a metering means for determining a flow rate of fluid traversing through the fluid delivery tube.
23. The system according to claim 1, further comprising a heat-conductive member having a first portion placed adjacent an interior portion of the fluid delivery tube and a second portion placed proximate the heating element, wherein the heat-conductive material transfers heat from the heating element to the interior portion of the fluid delivery tube.
24. The system according to claim 1, further comprising an insulative tube, wherein the fluid delivery tube is positioned within the insulative tube.
25. The system according to claim 24, further comprising a thermal medium positioned between the fluid delivery tube and the insulative tube.
24. The system according to claim 25, wherein the thermal medium envelops the heating element.
25. A method of heating a fluid for delivery into the body of a patient comprising:
 - providing a fluid delivery tube having a first end for connection to a fluid source and a second end for delivering the fluid from the fluid source to a destination;
 - applying an electrical current to a heating element proximate to and/or within the fluid delivery tube to heat fluid therein to a predetermined temperature;
 - sensing, *via* a thermal sensor positioned on the fluid delivery tube, a temperature corresponding to the temperature of the fluid within the tube; and
 - adjusting the current applied to heating element based upon the sensed temperature.

26. The method according to claim 25, wherein the current is decreased or stopped upon the temperature of the fluid delivery tube reaching the predetermined temperature.
27. The method according to claim 26, further comprising opening a valve which controls the movement of fluid from the fluid delivery-line to the patient upon the temperature of the fluid for delivery reaching the predetermined temperature.
28. The method according to claim 26, further comprising sensing a flow-rate of the fluid being delivered to the patient.
29. A system for heating a fluid for delivery into the body of a patient comprising:
 - a controller; and
 - a fluid delivery-line having a first end for receiving fluid from a fluid source and delivering the fluid to a destination, the fluid delivery-line comprising:
 - an insulative tube;
 - a fluid delivery tube positioned within the first tube, the fluid delivery tube for communicating a fluid;
 - at least one thermal sensor positioned proximate the fluid delivery tube;
 - a heating element positioned proximate the fluid delivery tube;
 - and
 - a thermal medium positioned between the first tube and the second tube.